JA/JH Series

Rotary Power Chuck

User's Manual

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JA/JH Series Rotary Power Chuck User's Manual

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Chapter 1
Introduction

Welcome to JATO JA/JH Series Rotary Power Chuck. This chapter covers the following topics:

- Overview
- Product Features
- Package Checklist
- Chuck Maintenance and Safety Notifications
- Chuck Installation
- Ordering of Harden Jaws
- Ordering of Blank Jaws

1-1 Overview

JATO Rotary Power Chuck has a built-in air/hydraulic cylinder, giving you a real hassle-free and front-mounting solution for your applications. You can use JATO Rotary Power Chuck to set up your chucking system in no time, and start various kinds of machining tasks right away.

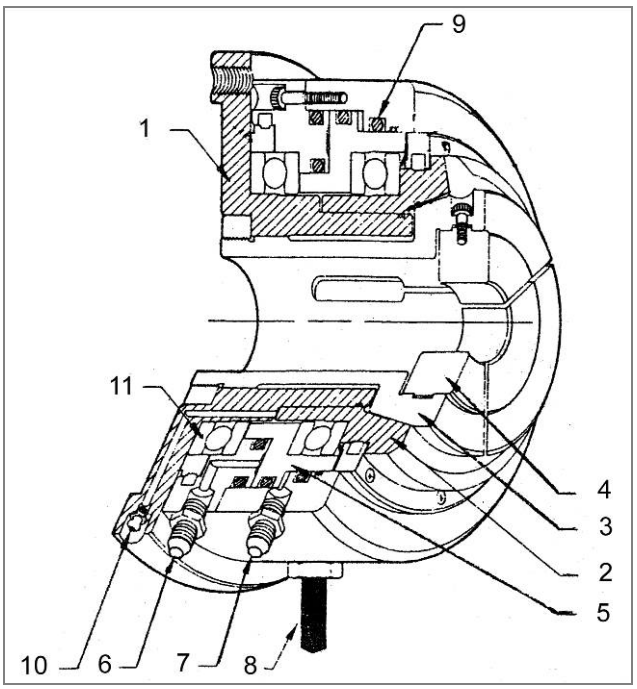


Figure 1-1

Part No.	Description
1	Chuck Body
2	Tapered Sleeve
3	Spring Collet
4	Jaws
5	Piston
6	Air/Oil Inlet A (Close Side)
7	Air/Oil Inlet B (Open Side)
8	Chuck Fixing Bar
9	O-Rings
10	Grease Nozzle
11	Bearings

Refer to the section view of JATO Rotary Power Chuck shown in figure 1-1. When the air/oil goes into chuck via Inlet A (6 in figure 1-1), the air/oil is guided to push the Piston (5 in figure 1-1) to move the Tapered Sleeve (2 in figure 1-1) forward to close the Spring Collet (3 in figure 1-1). The workpiece is clamped by the Jaws (4 in figure1-1) that are attached on the Spring Collet. And the workpiece is released when this process reverses as the air/oil goes into chuck via Inlet B (7 in figure1-1).

1-2 Product Features

- Air/Hydro cylinder is built-in. No need for extra cylinders.
- Easy to install.
- Repeatability for collet type power chuck: 0.03mm-0.05mm (0.001”-0.002”).
- Repeatability for jaw type power chuck: 0.05mm-0.08mm (0.002”-0.003”).
- Aluminum alloy chuck body. Light-weighted. Good heat dispensation.
- High flexibility with quick jaw/collet-change design.
- Through hole is reserved for bar feeder.
- Allow non-stop operation when loading parts. High productivity.

1-3 Package Checklist

JA/JH Series Rotary Power Chuck is shipped with the following items:

- 1 JATO Rotary Power Chuck
- 1 User’s Manual
- Mounting Screws
- 1 Set of Standard Blank Jaw
- 1 Fixing Bar
- Jaw-fixing Screws
- 1 Hexagon Key

1-4 Chuck Maintenance and Safety Notifications

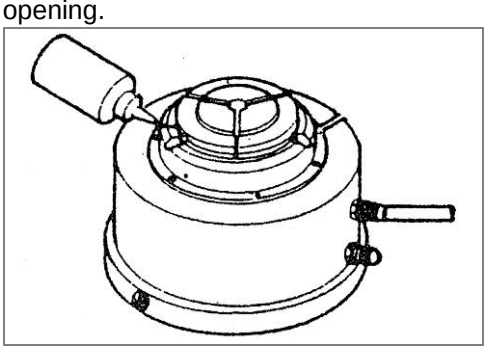
Chuck Maintenance

Please follow the instructions below to perform chuck maintenance.

1. The bearings of a JATO Rotary Power Chuck need to be lubricated regularly. The recommended brand of the grease is SKF LGEP2 bearing grease. When lubricating for the first time, inject 50cc grease into the Grease Nozzle (10 in Figure 1-1). Afterwards, 10cc is enough to be injected into the Nozzle each time when lubricating.
2. Follow the chart below to lubricate chuck's bearing on a regular basis:

Operating RPM	Interval for Greasing the Chuck
0-500	Every 200 operating hours
501-1000	Every 90 operating hours
1001-1500	Every 40 operating hours
1501-2000	Every 16 operating hours

3. Please lubricate the clearance between the Spring Collet and the Tapered Sleeve every 4 operating hours. Refer to the figure below. This may prevent the chuck from being stuck or not opening.



4. Avoid using cutting fluid with JATO Rotary Power Chuck. If it's absolutely necessary to use cutting fluid, please don't spray the fluid to the chuck directly. And please also shorten the interval

of greasing the chuck's bearing to every 16 operating hours.

5. Please keep the workpiece and the chuck clean from chips or debris, especially when the chuck is loading/chucking. Chips, dust or debris may damage the ground Tapered Sleeve.
6. To prevent the Spring Collet from being fatigue, do no turn off the power and close the chuck without a workpiece being clamped.
7. For Air Rotary Power Chuck (JA5-25, JA7-40, JA7-70,), please add a set of air lubricator in the air supplying system to lubricate the chuck's O-Rings. The recommended lubricant is Mobil DTE Light or equivalent.
8. For Hydraulic Rotary Power Chuck (JH5-25, JH7-40, JH7-70, JH9-120), warm up your hydraulic system for 20 minutes before daily operation. The viscosity of hydraulic oil will be higher under a low temperature environment, especially after over-night cooling. This may makes the operating pressure higher and damage the Spring Collet.
9. For Hydraulic Rotary Power Chuck (JH5-25, JH7-40, JH7-70, JH9-120), the life of the bearing will be longer under lower operating pressure. Increase hydraulic pressure bit by bit to find the exact operating pressure that the workpiece can be clamped properly by the chuck.

Safety Notifications

1. Add a safety shield to prevent injury caused by flying debris or facture of Spring Collet, especially when the chuck is operated under high speed.
2. Make sure the mounting screws of the spindle adaptor, the chuck and the jaws are properly tightened.
3. Turn off the power before removing, installing, adjusting, inspecting, or lubricating the chuck.
4. Do not exceed the maximum operating air/oil pressure listed in

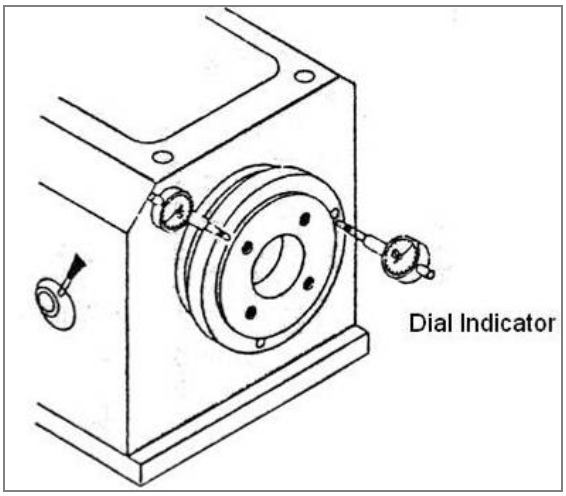
the manual.

5. Do not exceed the maximum RPM listed in the manual.

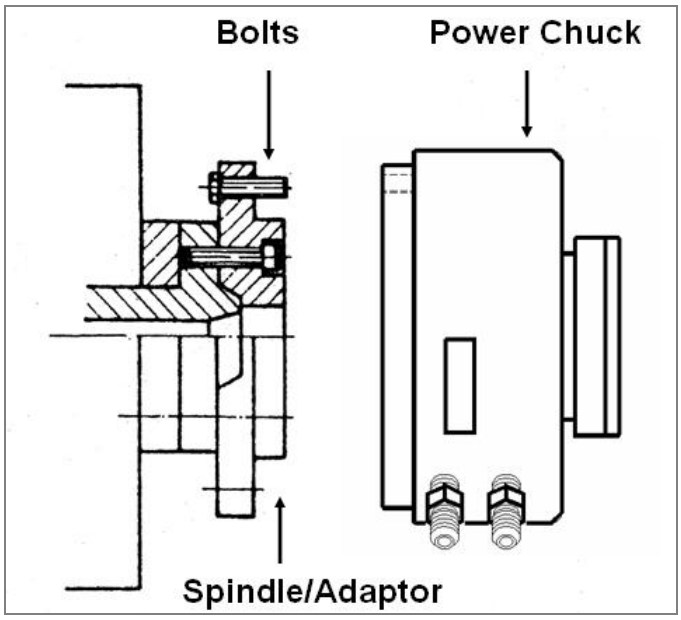
1-5 Chuck Installation

There is a video for helping you to know more about the installation of JATO Rotary Power Chuck. Please refer to www.jato-precision.com to download the video, or contact us for more information.

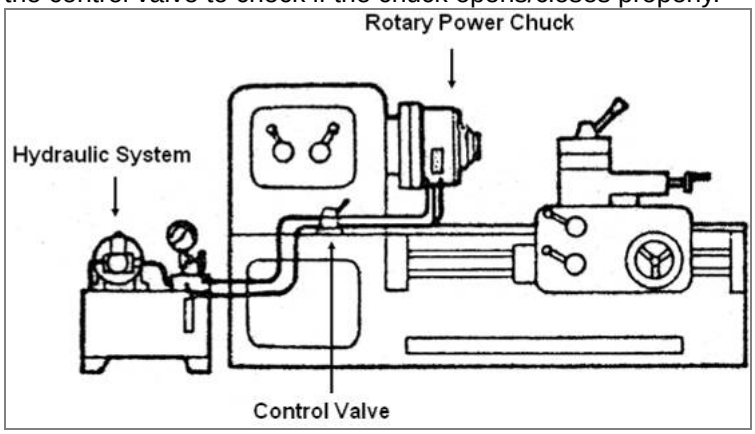
1. Remove the existing chuck on the lathe.
2. Install the adaptor onto the spindle. Check the radial and face run-out based on the chuck adaptor. Please refer to the following figure.



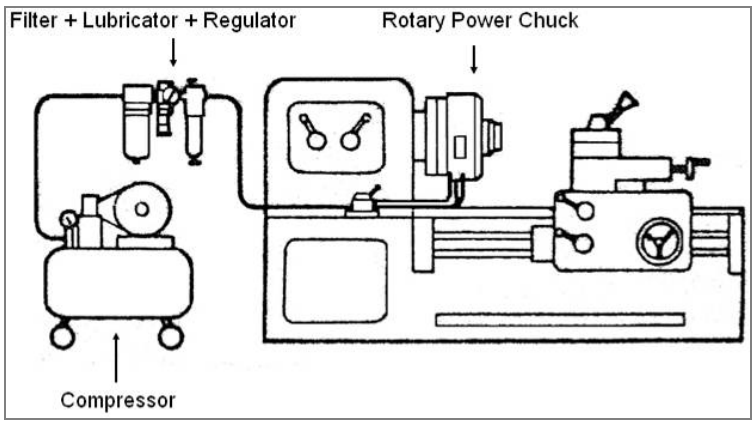
3. Install the chuck onto the spindle adaptor. Screw-in and tighten the mounting bolts. Rotate the chuck/spindle manually to check if the chuck is installed properly. Please refer to the figure below.



4. Connect the air /hydraulic supply system to the chuck. Switch the control valve to check if the chuck opens/closes properly.



Hydraulic Power Chuck System



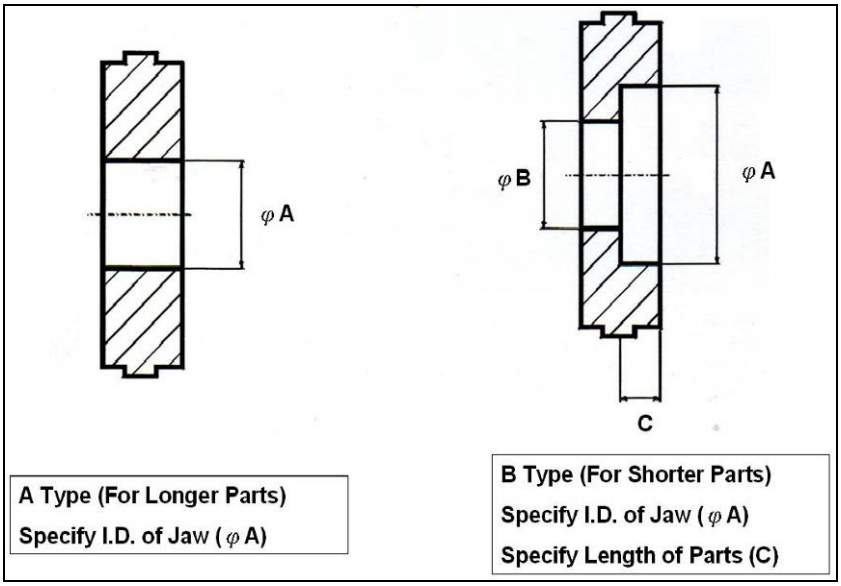
Air Power Chuck System

5. Screw one side of the fixing bar into the chuck, and place the other side between the slide ways or any other part of your machine that can provide stable support. This fixing bar is used to stop the stationary part of the chuck from rotating.
6. Run the spindle at low speed (100rpm for instance) to check if the chuck works smoothly.
7. Install the jaws with the jaw-fixing screws. Check if the chuck clamps the workpiece properly.

1-6 Ordering of Harden Jaws

JATO provides harden jaws for customers. Please provide us the drawing of your workpiece or specify the dimension of the jaws referring to the following figure. The figure shows two types of the jaws that are most commonly used by our customers. Jaws for special applications are available, please contact us for more information.

Please note that the I.D. of the jaws ϕA should be exactly the same with the O.D. of your workpiece. It means that if the O.D. of your workpiece is 20.0mm, please order 20.0mm I.D. jaws, not 20.4mm I.D. ones.



1-7 Ordering of Blank Jaws

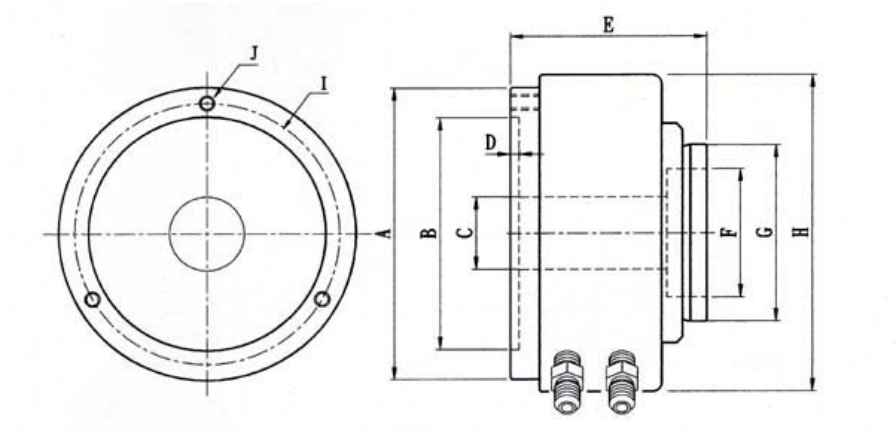
JATO also provides Blank Jaws and Jaw Machining Jig for customers who make jaws by themselves.

1. Install the Jaw Machining Jig onto lathe. The run-out of the Jig should be within 0.010mm.
2. Install the Jaws onto the Jig.
3. Machine the I.D. of the jaws according to the dimensions of your workpiece.
4. Heat-treating the jaws to harden them.
5. Install the Jaws onto the Jig. Fine finish the I.D. of the jaws (grinding, lapping, or fine turn machining).

Appendix A

Dimensions and Specifications

Dimensions



Model	JA7-70	JA7-40	JA5-25	JH9-120	JH7-70	JH7-40	JH5-25
Air/ Hydro	Air	Air	Air	Hydro	Hydro	Hydro	Hydro
A	192mm (7.56")	192mm (7.56")	135mm (5.31")	230mm (9.06")	192mm (7.56")	192mm (7.56")	135mm (5.31")
B	155mm (6.10")	155mm (6.10")	100mm (3.94")	190mm (3.94")	155mm (6.10")	155mm (6.10")	100mm (3.94")
C	68mm (2.68")	47mm (1.85")	27mm (1.06")	120mm (4.72")	68mm (2.68")	45mm (1.77")	26mm (1.02")
D	5mm	5mm	4mm	6mm	5mm	5mm	4mm

	(0.20")	(0.20")	(0.16")	(0.24")	(0.20")	(0.20")	(0.16")
E	142mm (5.60")	128mm (5.04")	105mm (4.13")	160mm (6.30")	142mm (5.60")	128mm (5.04")	105mm (4.13")
F	105mm (4.13")	65mm (2.56")	45mm (1.77")	140mm (5.51")	105mm (4.13")	65mm (2.56")	45mm (1.77")
G	168mm (6.61")	94mm (3.70")	68mm (2.68")	168mm (6.61")	136mm (5.35")	94mm (3.70")	68mm (2.68")
H	266mm (10.47")	212mm (8.35")	170mm (6.69")	275mm (10.83")	211mm (8.31")	192mm (7.56")	138mm (5.43")
I	172mm (6.77")	172mm (6.77")	115mm (4.53")	210mm (8.27")	172mm (6.77")	172mm (6.77")	115mm (4.53")
J	M10 x P1.5	M10 x P1.5	M8 x P1.25	M12 x P1.5	M10 x P1.5	M10 x P1.5	M8 x P1.25

Specifications

Model	JA7-70	JA7-40	JA5-25
Air/Hydro	Air	Air	Air
Input Pressure	2-7kg/cm2 28-100psi	2-7kg/cm2 28-100psi	2-7kg/cm2 28-100psi
Max. RPM	1400	1600	1800
Stroke	1.5mm (0.06")	1.5mm (0.06")	1.5mm (0.06")
Through Hole	68mm (2.68")	45mm (1.77")	26mm (1.02")
Weight	15.0kg (33lbs)	14.0kg (31lbs)	7.5kg (17lbs)

Model	JH9-120	JH7-70	JH7-40	JH5-25
Air/Hydro	Hydro	Hydro	Hydro	Hydro
Input Pressure	10-15kg/cm2 143-214psi	10-20kg/cm2 143-280psi	10-20kg/cm2 143-280psi	10-25kg/cm2 143-357psi
Max. RPM	1000	1400	1600	1800
Stroke	1.5mm (0.06")	1.5mm (0.06")	1.5mm (0.06")	1.5mm (0.06")
Through Hole	119mm (4.69")	68mm (2.68")	45mm (1.77")	26mm (1.02")
Weight	38kg (84lbs)	12.5kg (28lbs)	12.0kg (26lbs)	7.0kg (15lbs)

Appendix B
Troubleshooting

Chuck does not open – Occasionally

Cause	Recommended Checking Procedure
Insufficient lubrication between Spring Collet and Tapered Sleeve	Tap the Tapered Sleeve with a hammer slightly till the chuck opens. Lubricate the clearance between the Spring Collet and Tapered Sleeve.

Chuck does not open – Frequently

Cause	Recommended Checking Procedure
Over operating pressure on close side.	Tap the Tapered Sleeve with a hammer slightly till the chuck opens. Turn down the pressure.
Jaw over-worn	Tap the Tapered Sleeve with a hammer slightly till the chuck opens. Replace with new jaws.
Jaw's I.D. over-sized	

Oil/Air leakage

Cause	Recommended Checking Procedure
O-Rings worn out	Contact JATO for repairing. There is a document available that introduces how to dismantle, repair and re-assemble the chuck. Contact JATO for more information.

Noise when operation

Cause	Recommended Checking Procedure
Bearings damaged due to over-pressure	Contact JATO for repairing. There is a document available that introduces how to dismantle, repair and re-assemble the chuck. Contact JATO for more information.
Bearings damaged due to uncleanness	
Bearings damaged due to product life.	

Spring Collet Fractured

Cause	Recommended Checking Procedure
Over operating pressure	Contact JATO for repairing. There is a document available that introduces how to dismantle, repair and re-assemble the chuck. Contact JATO for more information.
Improper jaw design	
Collet damaged due to product life.	

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